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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,282	12/07/2000	John Michael Miller	200-0459	9416

22844 7590 12/29/2003

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EXAMINER

CORRIGAN, JAIME W

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 12/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/732,282

Applicant(s)

MILLER, JOHN MICHAEL

Examiner

Jaime W Corrigan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11-14, 24-26, 35-42 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 37-42, 44 and 45 is/are rejected.
- 7) ☒ Claim(s) 2-8, 12 and 46 is/are objected to.
- 8) ☒ Claim(s) 19-21 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

This Office Action is in response to the Amendment filed on 06 May 2003. Claims 1, 14, 37, 41 have been amended. Claim 43 has been cancelled. Claims 19-21 are Non-elected. Overall, claims 1-8, 11-14, 24-26, 35-42 and 44-46 are pending in this application. The arguments contained therein were deemed persuasive in part. Accordingly, a new non-final rejection is set forth below.

The Examiner would like to point out that claim 11 will not be examined on its merits since it depends on cancelled claim 10.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 37-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerling (PN 5,931,142).

Regarding claim 1 Gerling discloses an electromechanical valve assembly (See Figure 1) for an internal combustion engine (See Column 9 Lines

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48-66), said engine having an engine cylinder (See Figure 1 (2a), (2b)), said assembly comprising:

a rotor (See Figure 1 (7)) centered about a first axis having a bore (See Figure 2 (7)) extending generally axially therethrough;

a stator (See Figure 1 (13)) operatively disposed about said rotor for producing a torque (See Column 1 Lines 44-65, Column 7 Lines 60-64) to cause rotation of said rotor (See Abstract) about said first axis;

a valve (See Figure 1 (1)) having a valve stem (See Figure 1 (5)) and a valve head (See Figure 1 (1)), said valve stem configured to move upwardly (See Column 1 Lines 5-11) when said rotor rotates in a first direction to move said valve head against a valve seat (See Figure 1, 2(b), 2(c), Column 6 Lines 12-26) in said engine to prevent gas flow into or out of said engine cylinder (See Figure 1 2(a)).

Note: The cylinder disclosed is not a combustion chamber however reads on the claimed invention. Claims in a pending application are given their broadest reasonable interpretation. See *In re Pearson*, 181 USPQ 641 (CCPA 1974).

Regarding claim 37 Gerling discloses an electromechanical valve assembly (See Figure 1) for an internal combustion engine (See Column 9 Lines 48-66), said engine having an engine cylinder (See Figure 1 (2a), (2b)), said assembly comprising:

a rotor (See Figure 1 (7)) centered about a first axis having a bore (See Figure 2 (7)) extending generally axially therethrough;

a stator (See Figure 1 (13)) operatively disposed about said rotor for producing a torque (See Column 1 Lines 44-65, Column 7 Lines 60-64) to cause rotation of said rotor (See Abstract) about said first axis;

a valve (See Figure 1 (1)) having a valve stem (See Figure 1 (5)) and a valve head, said valve stem configured to move upwardly (See Column 1 Lines 5-11) when said rotor rotates in a first direction to move said valve head against a valve seat (See Figure 1, 2(b), 2(c), Column 6 Lines 12-26) of said engine cylinder (See Figure 1 (2(a))) to prevent gas flow into or out of said engine cylinder; and,

a position sensor (See Column 8 Lines Lines 27-28) for determining a rotational position (See Column 8 Lines 28-31) of said rotor.

Regarding claim 38 Gerling discloses a rotor centered about an axis (See Figure 1 (7)); a stator (See Figure 1 (13), (14)) disposed around said rotor producing a torque (See Column 1 Lines 44-65, Column 7 Lines 60-64) to cause rotation of said rotor about said axis; and,

a valve member (See Figure 1 (5), Column 6 Lines 28-51) threadably engaging said rotor, said member moving towards a valve seat (See Column 6 Lines 21-27) of an engine cylinder (See Figure 1 (2a)) when said rotor rotates in a first direction to restrict flow into or out of said cylinder (See Figure 1 2(a)).

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Regarding claim 39 Gerling discloses a position sensor (See Column 8 Lines Lines 27-28) generating a signal indicative of a rotational position of said rotor (See Column 8 Lines 28-31).

Regarding claim 40 Gerling discloses a position sensor generating a signal indicative of an axial position (See Column 8 Lines 43-53) of said valve member.

Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Ozaki et al. (PN 5,784,922).

Ozaki discloses a rotary electric (See Column 5 Lines 29-40) actuator configured to rotate a ballnut (See Figure 1 (15), (18)); and, a valve (See Figure 1 (20)) having a valve stem and a valve head (See Figure 1 (23)), said valve (See Figure 1 (20)) stem operatively connected to said ballnut (See Figure 1 (15), (18)), said valve stem configured to move generally axially responsive to the rotation of said ballnut (See Abstract, Column 5 Lines 16-63) to selectively engage and disengage (See Column 5 Lines 41-63) said valve head with a valve seat (See Figure 1 (8)) of an engine cylinder (See Figure 1 (6)).

Claims 44-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Schroeder et al. (PN 5,598,814).

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Regarding claim 44 Schroeder discloses controlling movement of a valve member (See Figure 1 (18)) based on an electrical (See Column 1 Lines 53-55) control signal; generating a position signal (See Figure 13 (110), Column 8 Lines 37-39, Column 9 Lines 6-8) indicative of a position of said valve member; and, commanding said valve member to stop (See Column 6 Lines 49-50, 58-60) when said position signal indicates said valve member (See Figure 1 (18)) is proximate a valve seat (See Figure 1) of an engine cylinder.

Regarding claim 45 Schroeder discloses said position signal is generated by a magneto-strictive sensor adjacent said valve member (See Figure 13 (18), (110)).

Claims 44-45 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Van Der Staay (PN 6,425,355).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki (PN 5,784,922) in view of Gerling (PN 5,931,142).

Ozaki discloses a valve member (See Figure 1 (20)); an electrically (See Column 5 Lines 29-40) actuated ball-screw (See Figure 1 (15), (18)) device operably coupled to said valve member (See Figure 1 (20)), said device moving said member towards a valve seat (See Figure 1 (8)) of an engine cylinder; an anti-twist guide (See Abstract Lines 4-6, Figures 4, 5(a), 5(b), Column 8 Lines 35-42)) coupled to said valve member for preventing rotation of said valve member.

Ozaki fails to disclose a position sensor generating a position signal indicative of an axial position of said valve member.

Gerling teaches that it is conventional in the art to utilize a position sensor generating a position signal indicative of an axial position of said valve member (See Column 8 Lines 43-53).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the axial position sensor taught by Gerling in the Ozaki device since it would improve control precision of the valve member.

***Response to Arguments***



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Applicant's arguments with respect to claims 14, 41-42, 44-45 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 1, 37-40 filed 06 May 2003 have been fully considered but they are not persuasive.

In response to Applicant's argument that Gerling fails to teach a valve assembly that moves a valve head against a valve seat of an engine cylinder. It is the Examiner's position that the tappet (See Figure 1 (1)) and conduit (See Figure 1 (2(a), 2(b), 2(c))) constitute a valve head, valve seat and an engine cylinder.

In response to Applicant's argument that Gerling teaches the use of conventional intake and exhaust valves communicating with an engine cylinder and as such, teaches away from utilizing an electromechanical valve assembly to move a valve head against a valve seat of an engine cylinder. It is unclear to the Examiner based on the Gerling drawings and specification what kind of drive mechanism is used for the intake and exhaust valves and as such does not "teach away" as purported by Applicant.

***Allowable Subject Matter***

Claims 2-8, 12, 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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**Conclusion**

Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2<sup>nd</sup> Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9302. After Final (703) 872-9303.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.


JC

Jaime Corrigan

Patent Examiner

July 9, 2003

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